DOCUMENT RESUME

ED 413 150 RC 021 249

AUTHOR	Stevens, Ken; Mulcahy, Dennis
TITLE	The TeleLearning and Rural Education Centre: Macro and Micro Dimensions of Small School Research.
PUB DATE	1997-09-00
NOTE	28p.; In: The Many Faces of Rural Education. Proceedings of the Annual NREA Convention (89th, Tucson, AZ, September 24-27, 1997); see RC 021 239.
PUB TYPE	Reports - Descriptive (141) -- Speeches/Meeting Papers (150)
EDRS PRICE	MF01/PC02 Plus Postage.
DESCRIPTORS	*Community Schools; *Distance Education; Educational Policy; *Educational Research; Elementary Secondary Education; Foreign Countries; Institutional Cooperation; Multigraded Classes; Networks; Policy Analysis; Research and Development; *Research and Development Centers; *Rural Schools; School Closing; School Community Relationship; *Small Schools
IDENTIFIERS	Memorial University of Newfoundland (Canada); *Newfoundland; Technology Utilization

ABSTRACT

The TeleLearning and Rural Education Centre was established in January 1997 at Memorial University of Newfoundland, in one of the most sparsely populated and economically depressed areas of Canada. Of 462 schools in Newfoundland and Labrador, 66 percent are rural and over half have enrollments of under 200 students. The Centre was established to address the educational needs of these small rural schools and improve the quality of educational services to rural communities. These goals will be accomplished through various research and development projects. The Centre acknowledges the long-standing relationship between rural and distance education, which has been formalized in the application of telelearning specifically for geographically isolated classrooms. A major research focus of the Centre at both macro and micro levels involves exploration of teaching, learning, management, and policy issues in small schools in rural areas. At the macro level, this focus is being pursued with research partners in New Zealand, Australia, Finland, Scotland, and Iceland. At the micro level, research and development work is being undertaken in several rural school districts in Newfoundland. The progress of the province's rural education reform over the last 5 years has been closely monitored, with particular attention paid to issues surrounding "school viability" and the combative informed resistance of rural citizens to government efforts to close small community schools. The Centre's teaching and learning initiatives include developing pedagogical approaches for multigrade or multiage classrooms, creating new media resources for effective teaching, and exploring effective ways of integrating new technologies into mathematics and science classrooms. Contains 68 references. (Author/SV)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED 413 150

PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

J Newlin

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☑ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

The TeleLearning and Rural Education Centre: Macro and Micro Dimensions of Small School Research

Ken Stevens, PhD
Chair of Telelearning and Rural Education
Faculty of Education
Memorial University of Newfoundland
St Johns, NF, Canada, A1C 5S7

Dennis Mulcahy, PhD
Telelearning and Rural Education Centre
Faculty of Education
Memorial University of Newfoundland
St Johns, NF, Canada, A1C 5S7

Prepared for the 89th Annual NREA Convention, *The Many Faces of Rural Education*
The National Rural Education Association and the Arizona Small / Rural Schools Association
Tucson, Arizona 24-28 September 1997

RC 021243

BEST COPY AVAILABLE

Abstract

The **TeleLearning and Rural Education Centre** was established in January 1997 at Memorial University of Newfoundland in Canada, in one of the most sparsely populated and economically depressed areas of the country. Of the 462 schools in the province of Newfoundland and Labrador, 66% are classified as rural and more than 50% have enrolments of under 200 students. The **Centre** was established to address the educational needs of these small rural schools and improve the quality of educational services to rural communities. These goals will be accomplished through a variety of research and development projects and activities, the outcomes of which will not only serve Newfoundland communities but also those in other national and international contexts. The **TeleLearning and Rural Education Centre** acknowledges the long-standing relationship between rural and distance education which it has formalized in the application of telelearning specifically for geographically isolated classrooms. A major research focus of the Centre at both macro and micro levels involves the exploration of teaching, learning, management and policy issues in small schools in rural areas. At the macro level telelearning in small rural schools is being pursued through research relationships with partners in New Zealand, Australia, Finland, Iceland and Scotland. At the micro level research and development work is being undertaken in several rural school districts of Newfoundland and Labrador. The progress of rural educational reform in the province over the last five years has been closely monitored. Particular attention has been paid to issues surrounding "school viability" and the combative, informed resistance of rural citizens to government's efforts to close small community schools. The **Centre** has initiated a major initiative in developing pedagogical approaches for rural schools with multi-grade or multiage classrooms. Other teaching and learning initiatives include creating new media resources for effective teaching, and, in partnership with a rural test-site school, exploring effective ways of integrating new technologies into mathematics and science classrooms. The micro dimension of the Centre's research highlights those aspects of small school pedagogy which have particular application to the multi-media environment. The macro research dimension will focus on the development of virtual classes to link teachers and learners in small schools regardless of location.

The TeleLearning and Rural Education Centre: Macro and Micro Dimensions of Small School Research

> *Imagine for a moment a developed nation, which regarded its rural schools as its elite and as models to be envied and emulated by metropolitan schools. Imagine a system in which rural schools were the prime beneficiaries of educational research, the recipients of a steady stream of the nation's best educators, and the bastions of the education world's power prestige, and resources.* - Jonathan Sher (1983)

Introduction

The purpose of this paper is to describe some aspects of the research and development work that will be pursued by the newly created **TeleLearning and Rural Education Centre** at Memorial University, located in Canada's most easterly province, Newfoundland and Labrador. The rural nature of the province presents a unique opportunity to do specialized work in the field of rural education and small, isolated schools. Sixty percent (60%) of all schools are officially classified as rural; fifty percent (50%) of the 472 schools in the province have less than 200 students. Sixty-five (65) of these schools have less than 50 students and only 14% of our schools have a student population of more than 400 (Mulcahy, 1996a)

The establishment of the **TeleLearning and Rural Education Centre** early in 1997, the first of its kind in Canada, is an important step forward for Newfoundland and Labrador. It sends a clear signal to the people of the province that the university recognizes, in a significant way, the number of rural schools in the province and indicates its commitment to working on their behalf. It is intended that the **Centre** will provide a focus and meeting place for all those with an interest in pursuing research and development work in Rural Education and TeleLearning studies. Newfoundland and Labrador is not unique in having a large percentage of rural schools. Other Canadian provinces and territories, many US states, many parts of the UK, especially Northern Scotland and Wales, and Australia and New Zealand face similar challenges in the provision of educational services to rural and isolated communities. One important role for the centre is to establish and maintain contacts with individual scholars and organizations in other places who have a special interest in Rural Education and TeleLearning.

In 1996 the **First National Rural Education Congress** was held in Saskatoon, Saskatchewan. Organized by the SELU, College of Education, University of Saskatchewan, this was the first time that a national conference on rural education had been organized in Canada. Plans were made at this conference to create a national organization for those interested in rural education. Following the model of the NREA in the United States, this organization will be open to everyone: university researchers, K-12 educators, school board personnel and parent groups and organizations. The second annual conference was held again in Saskatoon in February 1997. At that time intensive discussions took place aimed at the development of a Canadian Rural Education Association (CREA). The Centre of Rural Education and TeleLearning will work closely with this organization and promote its agenda for the national development of rural education in Canada.

A Research Tradition

Research and scholarly writing on rural education in Newfoundland and Labrador has been a tradition within the Faculty of Education at Memorial University and other district and school based educators in the province. Ishmael Baksh and Amarjit Singh (1977; 1979; 1980) did pioneering work in this area with their studies of teaching and learning in small rural communities in Newfoundland. In 1987 Frank Riggs completed a major investigation of educational provision in small rural schools in the province (Riggs, 1987). Emerging from this comprehensive review were a number of very significant recommendations that continue to provide direction for rural education and schooling. A record of some of the other significant work that contributes to our understanding of rural education in Newfoundland can be found in back issues of the *Morning Watch* see especially Vol.1,no.3) and *Society and Education in Newfoundland* Volume I & II (edited by A.Singh & I. Baksh). The former Newfoundland Teachers Association's *Journal* and the current *NLTA Prism* also contain important contributions to the research base that the new **Centre** will build on. "Dealing with individual differences in reading in a one-room

school" by Lary Sipe, a district level literacy consultant, was published in the Summer edition of *NTA Journal* in 1974 is a good example of rural educators in the field attempting to share their experiences and expertise with their small school colleagues. More recently, Jean Brown published an article entitled "Grandy's River Collegiate: Can a Rural School Survive in an Urban Landscape?" in the *Alberta Journal of Education* (Brown, 1996).

A number of teachers in the province have completed Masters' Theses which focused on rural issues. Among those are: Smith (1988) "A whole language approach to literacy in a four/five multi-grade classroom;" Barr-Bailet (1995) "An examination of the provision for science education in small rural schools:" Vincent (1995)" Making the transition from small school to larger school: The student's perspective", Howard (1996) "An investigation of a sample of small schools that consistently performed above the provincial norm on standardized tests" and Ryan (1996) "The capabilities of teachers in small rural primary schools to deliver a new French program that assumes a high level of oral competency on the part of the teacher."

A Macro Dimension of Small Schools Research - An International View
(by Ken Stevens)

Small school research usually takes place in rural areas. Small, rural schools are of particular interest to educators in many developed countries at the present time for the ways in which they use information and communication technologies to access educational services and, thereby, increase educational opportunities for geographically isolated people. In many remote areas of developed societies, small rural schools have embraced new communication technologies to extend the curriculum, interface with one another and, ultimately, safe guard their continued viability. Many of these small and geographically isolated institutions are now in a position to provide leadership to other schools in the application of converging information and communication technologies in the curriculum, in the management of virtual classes and in the development of new ways of teaching and learning.

In conditions of extreme geographical isolation in the interior of Australia, the north of Canada and the northern regions of the Nordic countries, information and communication technologies supplement and, increasingly, replace traditional distance education (Kronlund 1995); Kynaslahti and Salminen 1995; Salminen, 1995, Stevens, 1991,1993, 1994f,1995a,1995c; Stevens and Kynaslahti 1996). In smaller developed countries with significant rural populations such as Iceland and New Zealand, many small rural schools have developed regional or national telelearning networks from which they are able to both access and deliver educational services (Stevens,1995b, 1995d; Stevens, Kynaslahti and Salminen 1996).

Distance education has had a long association with the provision of education in rural areas. Through distance education many people have had their educational and vocational opportunities enhanced and their life chances extended (Stevens and Mason, 1994c; Stevens and McSwan, 1995e). For many people, distance education is the provision of rural education from an urban area. Most distance education is provided from centralized locations from which educational materials, mostly print-based, are distributed to dispersed learners. There has, of course, been considerable experimentation by distance educators in using information and communication technologies, including public radio and television channels, to reach young people and their parents who, for a variety of reasons, mostly related to the location of their homes, cannot attend schools on a daily basis.

Telelearning builds on distance education but places greater emphasis on computer-generated interaction between teacher and students, (and between students themselves), using the Internet, E-mail and, to an increasingly extent, specially constructed Intranets (Stevens, 1997). An outcome of the advent of telelearning has been the creation of virtual classes (Stevens, 1996, 1997 in press; Stevens and Kynaslahti, 1996). Virtual classes can be constructed over very dispersed locations and can be either synchronous or asynchronous, depending in part on the number of time zones that separate teachers and learners. As information and communication technologies develop and converge and are

incorporated into classrooms, many educators become teleteachers and many learners become telelearners.

The Telelearning and Rural Education Centre is in the process of formalizing teaching and learning links to schools in New Zealand, Australia, Finland and Scotland. The purpose of this is to extend both teaching and learning for all participating schools and to provide advantages for teachers and learners at all sites. The Centre has developed collaborative links between a test site school in rural Newfoundland and a small school in the North Island of New Zealand in the teaching of Biology to senior students. At Clarenville High School in Newfoundland, Canada and at Piopio College in New Zealand students and their teachers can each benefit from collaborative teaching and learning opportunities. The school at Clarenville is the Telelearning and Rural Education test-site for technology and pedagogy and is likely to become an integral part of the Faculty of Education. The school is located about two hours from the Memorial University and has an enrolment of approximately 55O students between years nine and twelve. It is anticipated that Clarenville High School will link with the fourteen other schools in its district as well as with many schools in other parts of the province, in providing access to courses not locally available. It is further expected that Clarenville High School will become a centre for the provision of technological expertise to other schools. The networking of schools is well-developed in New Zealand, Australia, Iceland and Finland (Stevens 1994a, 1994d, 1994f, 1995d, 1997) and plans are being made to form electronic links with selected institutions in these places from Newfoundland. Using contemporary information and communication technologies, small schools in dispersed sites throughout the world can interface with one another to form virtual classes.

Piopio College is a smaller school than Clarenville High School, with an enrolment of approximately 330 students. It is located in the central North Island of New Zealand and most students travel to it each day on buses from farms in outlying areas, in some cases, over long distances. The school serves a population that is almost entirely engaged in either dairy or sheep and cattle farming.

The majority of schools in Newfoundland are classified as rural and almost all are located on the coast. There are, accordingly, many opportunities for the Newfoundland students to learn about marine life and environments. In New Zealand, however, many small schools, like Piopio College, are not near the sea and students do not have the opportunity to undertake marine studies as part of their Biology courses. It is anticipated that the links that are being put in place between Clarenville and Piopio will extend the marine biological studies of the New Zealand students and, at the same time, provide their peers in Newfoundland with access to South Pacific flora and fauna.

It has already been found that the ways in which Biology is taught in the two schools differs considerably. In Newfoundland, students are required to attend school on a daily basis for instruction in classrooms. In the New Zealand school, students of senior Biology are required to work from home each Thursday, using their modems to log on to the Piopio College network from their homes. Senior New Zealand Biology students at Piopio College are in this way encouraged to develop independent ways of learning and to focus of field-based studies of flora and fauna. This has been of considerable interest to teachers in Clarenville who have begun using science materials from the New Zealand school off the Internet.

At the present time, the schools in Clarenville and Piopio are considering ways in which it is appropriate to work together, particularly in the teaching of mathematics and social studies.

At the regional level in New Zealand, small schools have been successfully integrated using electronic networks, providing increased educational opportunities (Stevens, 1995a). There are important equity issues in the continuation of this development. The current development of networking by some rural schools in New Zealand is providing a model for teaching, learning and the delivery of the curriculum that all schools are likely to have to consider in some way in the future. It is appropriate now to recognize the issues that are emerging from this new development, in particular, the educational significance of school size and location at a time when many small schools face the threat

of closure. In Australia there has also been considerable use of new technologies to link small and remote schools as well as the national university system (Stevens, 1994a, 1994b, 1994d,1994e). There is at present considerable scope for research in the new, electronic and increasingly integrated environment in rural schools. It has been found that there is scope for using rural school practices in Canada in the development of rural education in Australia (Stevens, 1992).

A Micro Dimension of Small School Research

(A Personal View by Dennis Mulcahy)

When someone asks me now what my primary research interest is I reply "rural education." I used to say "small schools." However, I find that rural education is a more inclusive term for the range and scope of the issues and questions I am interested in pursuing. More importantly it situates and identifies my work with a very specific context - rural communities. I have made this change for several reasons.

The first reason is rather obvious. As was indicated at the very beginning of this paper Newfoundland and Labrador is a primarily a rural province and a province of small rural schools. Thus, to be interested in small schools in Newfoundland and Labrador is to be interested in small **rural** schools. It is important to note that, while all but a few of the small schools are rural, not all rural schools are small. Because of many "successful" attempts at closure and consolidation there exists a fair number of larger schools (by provincial standards) located in rural communities. Small schools in urban areas are not the same as small schools in rural areas. The small private school in St. John's, the capital city, has little of consequence in common with a school the same size located in an isolated fishing community on the south coast of the island.

A second reason for emphasizing "rural" was not so obvious to me when I began work in rural education studies. However, I am becoming convinced that it is the unique features and characteristics of the rural context that give primary definition and direction to that work. I do not think I can make a contribution to improving education in rural communities if I do not understand and appreciate the strengths and challenges associated

with living in rural areas. Coming to this realization has both complicated and enriched the nature of my research. It would be simpler to ignore the context but to do so would make anything I do less valid.

I am still struggling to understand the rural context and its implications for education and schooling in Newfoundland and Labrador. Part of the challenge here is the sheer diversity of that context. In Canada, rural communities are defined by default. *Statistics Canada* gives an urban designation to all communities with a population of 5,000 of more. All others by default are classified as rural. Newfoundland and Labrador follows this model as well. Thus included in this general category are communities that differ quite substantially, and for research and development purposes, quite significantly, in population. Such a crude indicator gives no information about the degree of isolation or remoteness; nor does it tell us anything about the infrastructure of the community or the services that might be available in the community or nearby. In terms of infrastructure one of the most important considerations is basic tele-communications connectivity. Existing and emerging information technologies are increasingly making the size and location of rural schools irrelevant to their capability of providing a broad range of course offerings. It is no longer valid to close a rural school because it cannot offer the kinds of courses available in larger schools. Hence one the traditional perceived "problems" in rural schools now has a possible solution. However, many rural communities in this province do not have the necessary telephone lines to enable students and teachers to access the various services that are now available. Internet access is still problematic in many schools - often the very ones which need it the most. There is little point in suggesting technological solutions for small rural schools if the technology assumes an infrastructure that does not exist.

The socio-economic characteristics of rural Newfoundland and Labrador have to play a very prominent role in any investigation or discussion about educational provision and achievement. Our province is well known as the most economically depressed area of Canada. In many of our rural areas the depth of that economic depression is truly startling. Levels of unemployment exceed 70% in some instances. There are a significant

number of families who are dependent on social assistance and many, many others who fit the category of the working poor. In addition the educational levels of the rural adult population is significantly lower than the national or the provincial urban average. Research has clearly and consistently demonstrated how these factors influence student achievement and participation in school. To evaluate student and school performance without taking these and other rural factors into consideration (which is what is done all the time in this province and elsewhere!) is to terribly distort the educational achievement of our rural educators. In terms of educational progress and human development many of our small rural schools emerge as some of best in the country when measured using a fair test.

Small schools benefit greatly from being situated in rural communities. Traditionally, rural parents and other members of the community have taken a great interest in their schools. There is much written about the special relationship that often exists between school and community in rural places (DeYoung, & Theobald, 1991). Unfortunately, this special bond between school and community is constantly under siege as government attempts to force more and more communities to give up their schools (Mulcahy, 1997a;19966c; DeYoung, & Howley, 1992). There is an emergent body of research data purporting to show that small schools have a positive effect on "at risk" children. The "at risk" factors focused on in these studies are those associated with socio-economic factors. The conclusion of these studies is that with student populations in economically depressed regions, a small school may provide these students with their best chance of success. Given the current economic conditions in rural Newfoundland and Labrador, closing our small rural schools may be the single worst thing we could do in the name of reform. Instead of improving matters for rural students we may in fact be condemning them to failure(Howley, 1996; Huang & Howley, 1993).

The umbrella term, Rural Education, also allows me to include in my areas of interest Native Education. The Micmac, Innu, Inuit and Metis populations of this province go to school and receive their education in the rural areas of this province. These unique culture groups add to the diversity that defines and enriches the rural context.

I feel that I have only scratched the surface in my attempt to understand the contextual realities of rural schooling in Newfoundland and Labrador. Mythology, nostalgia, sentimentality, stereotypes, outdated notions, misinformation, lack of information, and urban indifference create barriers that impede the search for knowledge. One thing is clear: to speak of rural Newfoundland and Labrador in generalities is to speak falsely. I have become very wary of anyone who attempts to make any general statement about rural Newfoundland or rural schools. A *typical* rural community does not exist.

The international field of rural education studies makes problematic all our traditional i.e. urban notions about education and schooling in rural communities. It suggests we need to re-think and re-evaluate whose interests are being served when centralized educational authorities set out to improve rural schools. Historically, rural education reform has always assumed that improving rural schools meant making them more like urban schools. This has resulted in the closure and consolidation of small community schools and various attempts to find ways of delivering an urban curriculum to rural students. Today, however, there is growing realization that rural education reform must proceed from a very different paradigm. The uniqueness of the context, the particular cultural and economic aspirations of rural citizens and the views of rural people must be the starting point for change. Perhaps, most important is the view that rural education change and improvement must, in the first interest, serve the needs of rural communities and rural children (Sher, 1995; Nachtigal, 1992). It is rural citizens who must be the prime decision makers as to what is best for their communities and their children. The role of the rural education studies should be to provide rural communities with the knowledge they need to make their own informed decisions about education and schooling.

To be involved in rural education is very challenging, rewarding and frustrating. This is a particularly difficult time for the rural areas of Newfoundland and Labrador. These regions of the province have always endured tough economic conditions and have somehow survived. The current period, however, is one of extreme crisis. The cod moratorium has threatened the continued existence of many rural communities. Even in

those areas not directly affected by the moratorium en-employment is at an all-time high. Many people have left their home communities. The decline in population and school enrolment is dramatic in many areas. This, coupled with an on going erosion of rural services through an endless round of cutbacks and layoffs, has created grave concerns and doubts among the people about their futures. There is a sense of unease as people wait and wonder what is to happen next. There is also a conviction among many that the government's hidden (perhaps not so hidden) agenda is another round of resettlement. To have the task of providing and trying to improve education for the children of rural Newfoundland at such a time represents a daunting challenge. I have been following this developing situation closely with a particular interest in how this general condition is affecting the schools. I continue to admire and be impressed with our rural educators who struggle on a daily basis to provide quality learning experiences in communities under siege. One thing is very clear. We ignore this situation and its impact on education and schooling in this province at our peril.

This is the micro dimension or specific context of the **TeleLearning and Rural Education Centre.** However, the challenges presented by this context are not unlike those of other national and international contexts with similar socio-economic profiles. My work in rural education and the outcomes of that work are significant not just in Newfoundland but also to the wider rural education research community. In the concluding part of this section of the paper, I would like to outline some of the specific issues and questions I will continue to pursue through my invovlment in the **Centre**.

Policy Analysis

An important part of my ongoing work of the Centre will be rural education policy analysis (Mulcahy 1997a; 1997b; 1996a). As governments go through processes of reform and re-strutucturing they create policies and directives that impact directly and indirectly on rural education and schooling. In 1991 the government of Newfoundland and Labrador established a **Royal Commission of Inquiry.** The commission's published report, *Our Children Our Future*, made a number of recommendations that have both immediate and long-range implications for small and rural schools. For example, the

commission recommended that "non-viable schools be targeted for closure and consolidations. Subsequent legislation, *Education Acts 1996 & 1997* and *School Acts 1996 &1997*, attempted to set viability criteria, define the parameters for "necessarily existent schools", and change student transportation regulations. As part of "reform" only the most isolated schools will qualify for any extra funding or the provision of distance education.

An important part of the work of the centre will be a critical analysis of government policies to determine their impact on rural communities and their schools. Included in this analysis will be an investigation of the extent to which such policies are supported by research data and to what extent they reflect particular ideologies(Mulcahy,1993d). Another important question related to this topic is to what degree are changes to education policies being used to force people to abandon their rural communities? Utilizing the national and international contacts that have been developed, comparative studies will also be conducted to determine similarities and differences across rural education contexts.

Community Resistance to School Closure

There is a long tradition of community protest and resistance in Newfoundland and Labrador to government's efforts to reform small schools out of existence (Mulcahy, 1997a; 1996c). The current era of reform (from 1992) has been a particularly difficult one for rural communities as the government seems more determined than ever to close and consolidate a significant number of small community schools. My research in this area has focused on the nature of the case parents make to sustain and preserve their community schools (Mulcahy, 1997a; 1996). I am particularly interested in how the "grass roots" perspective on how to improve rural education provision contrasts sharply with the "official" government view of reform. It is noteworthy that today's parent groups make a more informed use of research. They feel very strongly about their schools being closed, but their feelings are reinforced by facts and information gleamed from rural education researchers. In addition, most recently in Newfoundland and Labrador,

several communities have successfully resorted to court actions to have district closure decisions reversed.

Rural communities offer an alternative paradigm for thinking about rural education reform (Nachtigal, 1992). It is a paradigm firmly rooted in a conviction that community based education and schooling is foundation upon which all improvements have to be constructed.

The Viability and the Value of Small Schools

The debate about the viability and value of small schools is both a perennial and universal issue in rural education studies. As Sher (1977) has pointed out, the "conventional wisdom" has always maintained that larger schools are better schools and are more cost effective to operate. However, research has consistently demonstrated that such claims are both problematic and questionable. Research that attempts to link school size to student achievement generally finds that when adjustments are made for key variables such as intelligence and socio-economic status little if any connection can made between student achievement and school size (Sher, 1977; Brown, K.G., & Martin, A.B., 1989; Gaulton & Patrick, 1990; Nachtigal, 1992). There is an equal body of research that questions whether or not substantial savings can be realized through school closures (Sher, 1977; Streifel, J., Foldesy, G. & Holman, D.H., 1991; Young, 1994).

Small school viability is a major issue of contention in Newfoundland and Labrador. Since 1992 the government has attempted to define viability guidelines that could be used as criteria to close small community schools. Rural communities have mounted a consistent effort to demonstrate that not only are small schools viable but that they provide a unique and a more supportive educational environment for young children, and especially for children who are at risk for socio-economic reasons.

I am currently involved in two projects that relate directly to the viability and value of small rural schools. Data is being collected from the ten school districts in an effort to

determine the savings being realized through school closures this year (1997/98). Thirty-eight (38) small schools were closed this year, justified in large part on economic grounds. The purpose of this project is to test the validity of this justification. Savings realized from school closures will be measured against new costs incurred through increased bussing and repairs and renovations to the receiving schools. The final analysis of this project will also take into consideration the extra costs incurred by the parents and the non-economic costs borne by the children.

Small Schools and Socio-economically "at risk" students

"An Assessment of the Impact of School Location, Class Size and the Academic Achievement of Average and 'At Risk' Students" is a project I am pursuing with Dr. Gary Jeffrey, a colleague in the Faculty of Education. While the literature indicates that achievement scores in larger schools tend to be higher, it is not clear that this pattern applies equally to all students or that it applies to all age and socioeconomic groups (Galton and Patrick, 1990). It has also been noted that with small schools being increasingly at risk of closure, the implications of these closures for students with diverse special needs have not been closely reviewed.

Howley (1996), for example, states that "large schools and districts are associated with the lower achievement of impoverished students and higher achievement for the more affluent" (p.20). It is not clear that there is a simple relationship between children's academic performance and the setting in which that instruction takes place. For academically "at risk" students, more attention needs to be paid to the multiple factors (including the students' increased access to teachers who are knowledgeable about their needs, support structure, ability, interests and family situations) associated with academic success. This study will look at the natures of different sized schools and assess how various dimensions of school size and location relate to the academic performance of a range of categories of "at risk" children.

This study was designed to take advantage of an opportunity afforded by the coming together of a large number of experienced regular classroom teachers from both small and large and urban and rural settings. These teachers came together for summer school credit and upgrading courses. Feedback was sought from these teachers regrading their observations of how the needs of three groups of special needs children (socioeconomically at risk, special needs and more able students) were being met in their respective schools. The study is multidimensional in nature and seeks to collect information from a diverse range of front line service providers from a range of school districts and school sizes.

A questionnaire was designed which would sample teachers' views and allow these to be compared along multiple dimensions. Initially, teachers attending summer school 1997 at Memorial University were asked to voluntarily complete the questionnaire. Pending these results, additional teachers may be asked to participate.

Multi-grade classrooms and Multi-age Pedagogy

Fifty-percent of the schools in the province have less than 200 students and the majority of these have one or more classrooms in which teachers have responsibility for more than one grade level. In the very small schools three grade levels are not uncommon; in some a single teacher has responsibility for as many as 5 grade levels. Newfoundland and Labrador has always had a significant number of these multi-graded classrooms; however, over the last several years their numbers have increased in rural schools. This is partly because of declining enrolments and partly because of changes in government policies of teacher allocation to small rural schools.

The official attitude over the years towards multi-graded classrooms in the province has been somewhat negative. They have been perceived as an unfortunate necessity created by the continuing existence of small schools that could not or would not be closed or consolidated. In fact, in many closure efforts the existence of multi-grading or the possibility of having to create such classrooms was often used by education authorities as

a weapon to convince rural communities to give up their community schools and bus their children to larger schools. This attitude remains to some extent even today.

Until fairly recently the existence of multi-graded schools and classrooms was all but ignored by most educational agencies in the province. Little if any assistance in the way of professional development or curricular guidance was available to teachers who had or would have in the future responsibility for multi-grade classrooms. The province's only teacher education institution, Memorial University, the provincial Department of Education, and the Newfoundland and Labrador Teachers Association, have acted as if multi-grading no longer existed. On occasion, an individual school board would take the initiative to address the issue. Generally, however, most people acted as if all schools, urban and rural, were large enough to have single grade classrooms. (And if they weren't they should be!)

Since 1991, multi-grading in small rural schools has been one of the prime areas of my research and development work in rural education Mulcahy, 1991; 1992a; 1992b;1993c 1997b). I have attempted to document the number of multi-grade classrooms and the variety of grade combinations that exist. I have also investigated the challenging nature of multi-grading, from the teacher's point of view and the strategies used by experienced teachers to make such classrooms work. One thing that was very clear from this project and subsequent research was the expressed needs of teachers for direction and help in the area of pedagogy. In almost every encounter I had with a multi-grade teacher the conversation always came around to the lack of professional guidance.

One of the major projects I will be working on this year involves the development of an undergraduate course that is intended, in the first instance, to address the expressed professional needs of teachers in small rural schools in the province of Newfoundland and Labrador. The course is designed for both experienced teachers currently working in small schools and new teachers currently completing their professional degree programs at the University. The approach I am taking with this course is to provide students with an introduction to multiage pedagogy. I chose this approach because I have come to

believe that multiage pedagogy has enormous potential to facilitate teaching in those small rural schools that must of necessity combine grade and age levels.

The Impact of bussing on students' academic performance, their participation in school activities, and the quality of their lives

One of the great un-examined issues in rural education is student transportation. Millions of students are bussed in North American everyday, some considerable distances, at a cost of several billion dollars a year. Yet we know very little about the impact of the time and distance traveled on students lives and their performance and participation in schools (Fox, 1996; Jones, 1983). One study planned for the future will investigate this issue. The importance of this issue has been confirmed by several discussions this past year with rural educators and parents at the Canadian Rural Education Congress in Saskatoon, Saskachewan (Feburary, 1997) and the National Rural Education Convention in Tucson, Arizona (September, 1997).

The Search for a Sense of Purpose in Rural Education

For some, rural education "means" the delivery of an urban curriculum to students in schools situated in rural communities. Rural education reform or improvement only means making that delivery system more effective or efficient. Generally this agenda is pursued under the guise of "improving educational opportunities for rural youth." However, many rural educators (Nachtical 1992; Sher, 1995; Mulcahy, (1996a) question whether this purpose serves the genuine needs of rural youth and rural communities. These and others reject the notion that the "problem" with rural schools is they are not more like urban schools. This particular point of view calls for a re-evaluation of rural education policies and the creation of a distinct philosophy of rural education, one that has the sustaining and development of rural communities as its prime concern.

Development of a Rural Education Data Base

One very important role for such a centre will be to develop a database of information about rural schools in this province. This data base would facilitate the work of faculty member and graduate students who wished to develop a research projects related to rural education studies. Another function of the centre will be the compilation of both local, national and international resources specifically related to rural and small schools education. Such sources would include both published materials and electronic links and resources. Establishing connections with rural education scholars and other rural research and development centres world-wide would also be part of the centre's agenda.

Community Based Education and Schooling

Unifying all of these research and development interests is my strong conviction that improvement efforts aimed at rural education and schooling must be grounded in an ecological perspective. There has to be a recognition of the interdependent, mutually beneficial and reciprocal relationship that exists between a rural community and its school. Changes made in the name of reform must serve the children and the wider community. Rural Educators must be interested in community development as well as educational development. One cannot proceed without the other. In some instances, particularly in areas with significant socio-economic deficits, community development may have to come first.

Furthermore, the starting point for all my work is a belief that community based education and schooling offers rural children and youth their best chance and opportunity for academic success and full participation in the life of the school and their communities. Therefore, all of my work is directed towards sustaining and enhancing the quality of education available to all children in their community schools. My interests in curriculum development, pedagogy, distance education and telelearning will be pursued

with this objective in the forefront. With a balanced utiliization of human and technical resources, small community schools can be among the very best in the nation.

Macro and Micro Environments - The Search for a Pedagogy of Telelearning in Rural Schools
(by Ken Stevens and Dennis Mulcahy)

The search for appropriate pedagogies for classrooms in geographically isolated communities is an international one, as seen in the Clarenville - Piopio relationship. As information and communication technologies develop and converge, new opportunities for teachers and learners are provided. However, as more technologies become available for educators to consider for classroom use, appropriate ways of organizing teaching and learning have to be developed to make effective use of them. One way of achieving this is for schools to work collaboratively, even if this means crossing multiple time zones.

Rural schools have always been places in which a considerable measure of flexibility has been required. To be effective in a small school in a rural area teachers have often had to teach beyond their area of expertise. In many small rural schools teachers have, furthermore, sought ways to provide students with access to learning opportunities beyond their local community. Students in rural areas have often had to find innovative ways of accessing non-local educational and vocational opportunities because of the lack of local employment.

As educational systems in developed countries enter the information age, many rural schools are at the forefront of developments in the application of information and communication technologies and the creation of flexible learning environments. One prominent outcome has been the linking of small schools electronically at regional, national and even international levels. Although electronically networked teaching and learning may not suit all students, this development provides a rural community with choices in the ways in which it can access educational resources from other places.

Students are often required to assume increased independence in their learning when electronic networks are used between schools but experience in New Zealand has shown that they usually have to be assisted by teachers in the setting of goals, the meeting of deadlines and in evaluating their progress.(Stevens, 1995a; 1995b). Teachers are effective in networked classes if they can be flexible in ways their students are encouraged to participate in on-line lessons. Strategies and protocols for on-line teaching have to be developed between participating schools if all students are to be able to fully participate in shared learning experiences.

The introduction of a rural school to an electronic network considerably improves its resource base for both teachers and learners. There is considerable scope in the development of rural school networking for the provision of individualized learning programs for students and this is something that will be considered by the Telelearning and Rural Education Centre. However, teachers have pointed out that " it is what goes on in the head of the teacher that matters" and the teacher is still the resource base of a successful lesson taught over an inter-school rural network (Stevens, 1995b). It is often difficult to coordinate the timetables of participating schools. A considerable measure of inter-institutional and intra-institutional cooperation is therefore required in the form of detailed planning for successful networking to develop.

There have been found to be a number of issues that have to be considered in the electronic linking of small rural schools at regional, national and international levels. Considerable expense is incurred in maintaining each school's hardware, particularly the repair of faults and on-line costs. Constant changes in hardware and software by manufacturers makes it necessary to continually upgrade hardware and software and to recognize this as an on-going cost.

The need for rural networked schools to have a close relationship with the suppliers of technology is now obvious. In particular, there is a need for expert advice and support from technology suppliers and this should be at the network rather than at the individual school level.

A vital aspect of the development of networks is the coordination of technology and software between schools. Without compatibility of technology, schools cannot fully participate in networks, with consequent loss of educational opportunities for rural students and their communities. The purchase of appropriate hardware and software is an

area of confusion for principals and many teachers in most of the schools with which the Centre has developed a relationship.

The successful administration of a rural school electronic network requires local technical support. Many rural teachers fear a situation in which the technology they are using malfunctions during a lesson in the absence of local technical support. Unless adequate support systems are established, networking between rural schools could be curtailed by reluctant teachers.

The introduction of inter-school electronic networks has added a new dimension to New Zealand and Canadian education. As new technologies increasingly influence the organization of education in rural schools, it is appropriate that the requirements of particular groups: girls, indigenous students and those with special learning needs be assessed in relation to its introduction.

It is possible however, that the introduction of information technology in schools may actually increase educational isolation for some rural students and their families if its application reduces teacher contact. Furthermore, the application of increasingly sophisticated information and communication technologies in schools in small rural communities may contribute to the isolation of students from their parents who are not introduced to either its use or made aware of its educational and vocational potential. New technologies in rural schools are unlikely to be fully utilized unless attention is given to the professional development of teachers in their selection and application in relation to teaching and learning.

References

Baksh, I.J. & Singh, A. (1978). Problems in Teaching Multi-grade classroom groups in Newfoundland: Teachers' Views. *Morning Watch*. Vol. 5, Nos.3-4, pp.11-14.

Baksh, I.J. & Singh, A. (1979). *The Teacher in the Newfoundland Community*. (Monograph) Faculty of Education, Memorial University: St.John's, Nf.

Baksh, I.J. & Singh, A. (1980). *Teachers' Perceptions of Teaching: A Newfoundland Study*. (Monograph) Faculty of Education, Memorial University: St.John's, Nf.

Brown, J. (1996) Grandys River Collegiate: Can a Rural School Survive in an Urban Landscape? *Alberta Journal of Education*. Vol. XLII, (3), pp: 238-251.

Brown, K.G., & Martin, A.B. (1989). Student Achievement in Multigrade and Single Grade Classes. *Education Canada*, Vol. 29, No.1, pp:10-13.

DeYoung, A.J. (1987) The Status of American Rural Education Research: An Integrated Review and Commentary. *Review of Educational Research*. Vol. 57, No.2. pp. 123-148.

DeYoung, A. J., & Theobald, P. (1991). Community Schools in the National Context: The Social and Cultural Impact of Educational Reform Movements on American Rural Schools. *Journal of Research in Rural Education*.Vol. 7, No. 3, pp: 3-14.

DeYoung, Alan J.; Howley, Craig B.(1992). The political economy of rural school consolidation. *Peabody Journal of Education*. Vol. 67, No.4, pp: 63-89.

Fox, Michael (1996). Rural School Transportation as a Daily Constraint in Students's Lives. *Rural Educator*, 17(2), 22-27.

Galton, M. & Patrick, H. (1990) *Curriculum Provision in the Small Primary School*. London: Routledge

Howley, C. (1996). Compounding disadvantage: The effects of school and district size on student achievement in West Virginia. *Journal of Research in Rural Education*, 12(1), 25-32.

Huang, G., & Howley, C. (1993). Mitigating disadvantage: Effects of small-scale schooling on student achievement in Alaska. *Journal of Research in Rural Education*, 9(3), 137-149.

Jones, P. M., Dix, M. C., and Clarke, M. I. (1983). *Understanding Travel Behavior*. Aldershot: Gower Publishing.

Kronlund T (1995) New Learning Perspectives For Remote Classrooms Using Videoconferencing, Paper presented in Open Classroom Conference, *Distance Learning Technologies in School Level Education and Training*, Oslo.

Kynaslahti H and Salminen J (1995) Integration of Remote Classrooms: Technical and Local Perspectives, in F Nouwens (ed) *Distance Education - Crossing Frontiers*, Rockhampton, Central Queensland University

Mulcahy, D.M. (1997a). *Rural Education Reform: The Consultation Process*. National Rural Education Association Annual Congress/Research Forum. Tucson, Arizona. September 24-29, 1997

Mulcahy, D.M. (1997b).*Multiage Pedagogy in Small Rural Schools*. National Rural Education Association Annual Congress. Tucson, Arizona. September 24-29, 1997.

Mulcahy, D.M. (1996a) Why Rural Education? *Morning Watch, Electronic Edition*. Vol.24, Nos.1-2

Mulcahy, D.M.(1996b) Formal and Informal Education in Fair Haven, Placentia Bay: 1911-1958.*Newfoundland Studies* Vol.11 No. 2 pp. 283-307.

Mulcahy, D.M. (1996c).*Reforming Small Schools out of Existence: A Canadian Example*. National Rural Education Association Annual Congress, Research Forum. San Antonio, Texas, October 13, 1996.

Mulcahy, D.M. (1996d).*Changing Pre-service Teachers' Perceptions of Mult-grade classrooms*. National Rural Education Association Annual Congress. San Antonio, Texas, October 12, 1996.

Mulcahy, D.M. (1996e).*A Critique of Proposed School Viability Regulations in Newfoundland and Labrador*. First National Congress on Rural Education. Saskatoon, Saskatchewan, March 14, 1996.

BEST COPY AVAILABLE

Mulcahy, D.M.(1995a) *Preparing Materials for Open, Distance, and Flexible Learning: Action Guide for Teachers and Trainers*, A review in *Canadian Journal of EducationalCommunications*, Vol.24 (2).

Mulcahy, D.M. (1995b) *Small schools and Multi-grade Classrooms: The Need for a Handbook for New Teachers*. Atlantic Educators' Fifth Annual Conference. St. John's, NF October 13, 1995.

Mulcahy, D.M. (1995c) *Space Exploration and Discovery: A Theme Approach Integrating Mathematics Across the Curriculum in Multi-grade Classrooms*. National Council of Teachers of Mathematics: Canadian Regional Conference. Co-presenter: Grace Hollette and Students from Education 3375. St. Johns, NF. October 14, 1995.

Mulcahy, D.M. (1995d) *Curriculum Strategies for Multi-grade Classrooms*. National Rural Education Association Annual Congress. Salt Lake City, Utah, October 8, 1995.

Mulcahy, D.M. (1995e). *Current Research in Rural Education*. NLTA Small Schools Special Interest Council Conference. Gander, NF May14, 1995.

Mulcahy, D.M. (1994a). *Ideologies and Rural Education*. Eighth Biennial Conference of the Canadian History of Education Association, St. John's, NF October, 1994 13-16.

Mulcahy, D.M. (1994b). *Learning and Teaching in Multi-grade Classrooms*. National Rural Education Association Annual Congress, Tuscaloosa, Alabama, October 14-18, 1994.

Mulcahy, D.M. (1994c). *The Curricular Challenges of Multi-grading*. Canadian Association for Curriculum Studies, CSSE/Learned Societies Conference, Calgary, Alberta, June 1994.

Mulcahy, D.M.(1993a) *Learning and Teaching in Multi-grade Classrooms*. (Monograph) St John's: Faculty of Education Publications Committee, Memorial University.

Mulcahy, Dennis (1993b) Talking To The Wall. *Prism*. Vol. 2, No.2, pp:21-24

Mulcahy, Dennis (1993c) Towards a Distinctive Approach for Multi-Grade Classrooms. *Education Canada*. Spring, 1993.

Mulcahy, D.M. (1993d) Expanding Expectations/Conflicting Ideologies in *Our Children OurFuture: Commissioned Studies*. St. John's: Government of Newfoundland and Labrador

Mulcahy, D.M. & Doyle, C. (1993e) A Curriculum Development Model for Newfoundland and Labrador. in *Our Children Our Future: Commissioned Studies*. St. John's: Government of Newfoundland and Labrador

Mulcahy, Dennis.(1992a) Do We Still Have Multi-Grade Classrooms. *Morning Watch*. Vol. 20, Nos. 1-2, pp: 1-8.

Mulcahy, Dennis.(1992b) Multi-grade - Single Grade: What is the Difference? *Morning Watch*. Vol. 20, Nos. 1-2, pp. 9-17.

Mulcahy, Dennis.(1991) The Curricular Challenge of Multi-Age Groupings. *Morning Watch*. Vol. 19, Nos.1-2.

Nachtigal, Paul (1992).Remapping the Terrain: School Size, Cost, and Quality. (ERIC Document No. ED 361 161).

Nachtigal, P. (1992). Rural schooling: obsolete or harbinger of the future? *Educational Horizons*, 70(2), 66-70.

Riggs, F. (1987) *Small Schools Study Project: Final Report*. St. John's, Nf.: Faculty of Education, Memorial University.

Sher, J. (1983) Education's Ugly Duckling: Rural Schools In Urban Nations. *Phi Delta Kappan*, 65(4), 22-28.

Sher, J. (1977) *Education in Rural America: A reassessment of Conventional Wisdom*. Boulder, Colorado: Westview Press.

Sher, J. (1986). Heavy Meddle: A Critique of the North Carolina Department of Public Instruction's Plan to Mandate School Districts' Mergers Throughout the State. (ERIC Document No. ED 270 245)

Sher, J. (1995). "The Battle for the Soul of the Rural School Reform: Can the Annenburg Rural Challenge Turn the Tide?" Phi Delta Kappan, Oct., 1995, p. 143-148.

Salminen J (1995) The Evaluation of the ISDN-based Video Conferencing in Classroom-focussed Distance Education, paper presented at 'On Line' conference, (September) Berlin.

Stevens, KJ (1991) Recent Developments in Rural and Distance Education in New Zealand and their Implications *New Zealand Annual Review of Education*, No 1, pp160-172

Stevens, KJ (1992) The Development of a Professional Programme for Northern Canadian Teachers Based On Australian Rural Research and Practices, *Rural Society* Vol. 2, No. 1, 1992, pp: 1 - 5

Stevens, KJ and Tate O (1993) The Changing Nature of Distance Education in New Zealand (1992-93): Some Strategic Implications *New Zealand Annual Review of Education*, No 3, pp319-334

Stevens, KJ (1994a) Some Applications of Distance Education Technologies and Pedagogies in Rural New Zealand Schools *Distance Education* Vol 15 No 2

Stevens, KJ (1994b) Rural Education, Policy and Teaching, In: Elizabeth Hatton (ed) *Understanding Teaching: Curriculum and the Social Context of Schooling*, Sydney and London, Harcourt Brace and Co., 1994, pp: 363 – 373

Stevens, KJ and Mason, D (1994c) Family and School Influences on the Vocational Choices of Students in a Rural Western Australian Community, *The Vocational Aspect of Education* Vol. 46, No. 3, 1994, pp: 273 - 283

Stevens, KJ (1994d)Australian Developments in Distance Education and Their Implications for Rural Schools, *Journal of Research in Rural Education* Vol. 10, No. 1, Spring, 1994, pp: 78 - 83

Stevens, KJ (1994e) Distance Education and Open Learning in Australia: A New Zealand Perspective, *Open Learning* Vol. 9, No. 2, 1994, pp: 29 – 35

Stevens, KJ (1994f)New Communication Technologies and the Changing Concept of Distance Education in Australia, *The Net - Networking With Electronic Technology*, Vol. 1, No. 4, September, 1994, pp: 16 – 17

Stevens, KJ (1995a) Geographic Isolation and Technological Change: A New Vision of Teaching and Learning in Rural Schools in New Zealand, *The Journal of Distance Learning* Vol 1, No1

Stevens, KJ (1995b) *Report to the Minister of Education on the Development of Networks Between Small*

Rural Schools in New Zealand , Wellington, Rural Education Reference Group, May 1995

Stevens, KJ (1995c)The Technological Challenge to the Notion of Rurality in New Zealand Education - Repositioning the Small School, In: Ian Livingstone (ed) *New Zealand Annual Review of Education* No. 5, pp: 93 – 103

Stevens, KJ (1995d)Distance Education and the Networking of Small Schools in New Zealand, In: David Sewart (ed) *One World, Many Voices - Quality in Open and Distance Learning* (Volume Two) Milton Keynes, The Open University, pp: 17 – 20

Stevens KJ and McSwan D (1995e) Post-Secondary School Educational and Vocational Issues Facing Families in Rural North Queensland, *Education in Rural Australia*, Vol 5, No 1, pp 45-46

Stevens, KJ (1996) Emerging Issues in the Management of Teaching and Learning Following the Integration of Small Schools in Some Remote New Zealand Communities, In: Veijo Meisalo (ed) *The Integration of Remote Classroo*ms University of Helsinki, Department of Teacher Education Research Report No. 160, Helsinki, University of Helsinki Press, 1996, pp: 145 - 153

Stevens, KJ and H Kynaslahti (1996) Mediating Local and Global Knowledge: The Emergence of the Virtual Classroom in Finland and New Zealand, In: Bryan Glastonbury (ed). *Dreams and Realities: Information Technology and the Human Services*, Stakes - National Research and Development Centre for Welfare and Health, Helsinki, pp: 205 - 214

Stevens, KJ, Kynaslahti H, and Salminen J (1996) Alustavia Tuloksia Koulujen Verkottumisesta Suomessa Ja Uudessa Seelannissa (Some Preliminary Outcomes From Networked Classes in Finland and New Zealand), Julkaistavaksi Suomen Kasvatustieteelliessa Aikakauskirjassa 'Kasvatuksessa' *The Finnish Journal of Education* Vol. 27, No. 2,1996, pp: 196 - 205

Stevens, KJ (1997) Three Approaches to the Provision of Education in Small Rural Schools in Australia and New Zealand - Assisted Out Migration, Distance Education and Telelearning *Perspectives of Distance Education in the School - Etaopetus Koulussa – Kilpisjarvi-projekti 1994-1997*, edited by Jari Salminen, Helsingin 11Normaalikoulun Julkaisuja, Helsinki, pp: 103-110

Stevens, KJ (1997, in press) Udvidet læseplan i virtuelle klasser - Små skolers bidrag til udviklingen af teleundervisning i landdistrikterne i New Zealand, Finland og Canada (Extended Curriculum in Virtual Classes - The Contribution of Small Schools to the Development of Telelearning in Rural New Zealand, Finland and Canada) *Skolen i Norden* (published in Danish, translated into Finnish)

Streifel, J., Foldesy, G., Holman, D.M. (1991). The Financial Effects of Consolidation. Journal of Research in Rural Education, Vol. 7, No. 2, p. 13-20.

Tyack, D. (1974) *The One Best System.* Cambridge: Harvard University Press.

Young, E. (1994). Questioning Consolidation. *Tennessee School Board Journal*, Vol. 11, No. 2, P. 33-37.